

SPECIFICATIONS VOLUME 1 OF 2			
Specification Section	Submittal Name/Type	Submitted (Y/N)	Approved (Y/N)
DIVISION 1 - GENERAL REQUIREMENTS			
01 00 00	GENERAL REQUIREMENTS		
	Contractor OSHA Certification Records		
	Contractor Training Records:		
	1.) Site Superintendent		
	2.) All Employer/Sub-contractors of the General Contractor		
	3.) All other Employees Associated with the Project		
	Contractor Vehicle Authorization Requests		
	Fire Safety Plan		
	Infectious Control Plan		
	Dust control Program Plan		
	Construction Phasing Plan & Schedule		
01 32 16.15	PROJECT SCHEDULES		
	Critical Path Method Plan & Schedule		
	Contractor Consultant Information:		
	1.) Name & Address of Proposed Consultant		
	2.) Work History/Qualifications		
	3.) List of Recent Work/Projects		
	Monthly Computer Produced Schedules		
	Complete Project Schedule		
	Complete Work Activity/Event Cost Data Schedule		
01 74 19	CONSTRUCTION WASTE MANAGEMENT		
	Debris Management Plan to Include the following:		
	1.) Procedure to be used for Debris Management		
	2.) Techniques to be used to minimize waste generation.		
	3.) Analysis of estimated job site waste to be generated.		
	4.) Detailed description of the Means/Methods to be used for material handling.		
	Construction & Demolition Report for Waste Management Facility.		
	Summary of construction and demolition debris diversion and disposal.		
	(Contractor to fill out Material Disposal Schedule per section 3.4)		
01 81 11	SUSTAINABLE DESIGN REQUIREMENTS		
	Commercial Cooling Equipment Cutsheets		
	MEP & Equipment Control Systems & Product Cutsheets		
	Documentation of all Salvaged & Reused Materials		
	Documentation of all project materials using Recycled Content		
	Documentation of all project materials using Regional Materials to Include the following:		
	1.) Cost of each Material or Product.		
	2.) Location of Product Manufacturer & Distance from Project Site.		
	3.) Location of Point of extraction or recovery of each material.		
	4.) Manufacturer's product data & letter from the manufacturer verifying the location & distance from the Project Site to the point of manufacture for each regional material.		
	5.) Manufacturer's product data & letter from the manufacturer verifying the location and distance from the Project Site to the point of extraction, harvest, or recovery for each regional material.		
	6.) An electronic spreadsheet that tabulates the Project's total materials cost and regional materials value, expressed as a percentage of total materials cost		
	Outdoor Air Delivery Monitoring System & Product Cutsheets		
	Interior Adhesives & Sealants Product Cutsheets		
	Interior Paints & Coatings Product Cutsheets		
	Exterior Paints & Coatings Product Cutsheets		
	Air Filtration Submittal to Include the following:		
	1.) Minimum Efficiency Report Value (MERV) for filtration media in all air handling units (AHUs) per ASHRAE HVAC Design Manual for Hospitals and Clinics.		
	2.) Minimum Efficiency Report Value (MERV) for filtration media installed at return air grilles during construction if permanently installed AHUs are used during construction.		
	Mercury Lighting Cutsheets		
	Lighting Controls & Product Cutsheets		
	Thermal Comfort Controls & Product Cutsheets		
	Blended Cement Submittal to Include the following:		
	1.) Copies of concrete design mixes for all installed concrete.		
	2.) Copies of typical regional baseline concrete design mixes for all compressive strengths used on the Project.		
	3.) Quantities in cubic yards of each installed concrete mix.		
	Gypsum Wall Board Product Cutsheets		
	Acoustical Duct Insulation Product Cutsheets		

	Project Materials Cost Data Submittal to Include the following: 1.) Provide preliminary schedule of materials costs for all materials used for the Project organized by specification section. 2.) Provide final version of the schedule of materials costs to the Owner and Architect not more than 14 days after Substantial Completion.		
	Construction Waste Management Schedule per Section 01 74 19		
	Construction Indoor Air Quality I to Include the following: 1.) Not more than 30 days after the Preconstruction Meeting, prepare & submit for the Architect and Owner's approval, an electronic copy of the draft Construction IAQ Management Plan. 2.) Instruction procedures for meeting or exceeding the minimum requirements of the Sheet Metal & Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings Under Construction. 3.) Not more than 30 days following receipt of the approved draft CIAQMP, submit an electronic copy of the approved CIAQMP in an electronic file. 4.) Not more than 14 days after Substantial Completion provide the following: - Documentation verifying required replacement of air filtration media in all air handling units. - Minimum of 18 Construction photographs documenting implementation of the IAQ management measures, such as protection of ducts and on-site stored or installed absorptive materials. - A copy of the report from testing & inspecting agency documenting the results of IAQ testing.		
	Project Commissioning per Section 01 91 00		
	Sustainable Design Progress Report to Include the following: 1.) Construction Waste Management Plan. 2.) Construction IAQ Management Plan. 3.) Quantities in cubic yards of each installed concrete mix.		
01 91 00	GENERAL COMMISSIONING REQUIREMENTS		
	Preliminary Commissioning Plan to Include the following: 1.) The Commissioning Team: A list of commissioning team members by organization. 2.) A detailed list of systems to be commissioned for the project. 3.) Commissioning Team Roles and Responsibilities. 4.) Commissioning Documents that includes a preliminary list of commissioning-related documents, identification of the parties responsible for preparation, review, approval, & action on each document. 5.) Commissioning Activities Schedule identifying Commissioning Activities, including Systems Functional Testing, the expected duration and predecessors for each activity. 6.) Preliminary Pre-Functional Checklists for equipment, components, subsystems, & systems to be commissioned. 7.) Preliminary step-by-step System Functional Performance Test Procedures to be used during Systems Functional Performance Testing.		
	Final Commissioning Plan Submittal		
	Systems Functional Performance Test Procedures		
	Pre-Functional Checklists		
	Test & Inspection Reports		
	Corrective Action Documents		
	Preliminary Commissioning Report Submittal		
	Final Commissioning Report Submittal		
	Data for Commissioning Report to Include the following: 1.) Contractor to provide specific information about each piece of commissioned equipment or system to fulfill requirements of the Commissioning Plan. 2.) Contractor to provide further documentation as necessary for the commissioning process or to support other VA data collection requirements, including Construction Operations Building Information Exchange (COBIE), Building Information Modeling (BIM), etc.		
DIVISION 2 - EXISTING CONDITIONS			
02 82 11	TRADITIONAL ASBESTOS ABATEMENT		
	PRE-CONSTRUCTION WORK SUBMITTALS		
	Detailed Work Schedule		
	Staff Organization Chart & Work Qualifications		
	Standard Operating Procedures		
	All Equipment and Materials to be used to perform Contracted Work. (ie. Supply Air, Hepa Filters, Waste Monitoring, Respirators, Fire Safety, etc.)		
	Name, Location, & Contact Information of Approved Landfill		
	Name, Location, & Contact Information of all required Regulatory Agencies.		
	Name, Location, & Contact Information of all Laboratories used for analysis of Test Samples.		
	Submit the following for the verification of qualifications: 1.) Asbestos Abatement Company 2.) List of Projects recently performed. 3.) List of Asbestos Regulatory Citations.		

	Name & Work Qualifications of all Personnel and include the following: 1.) CPIH - Name and Years of Abatement Experience, along with all Certifications & Licenses. 2.) Project Supervisors - Name and Years of Abatement Experience, along with all Certifications & Licenses. 3.) Workers - Name and Years of Abatement Experience, along with all Certifications & Licenses.		
	State License of the Asbestos Abatement Company		
	Manufacturer's Technical Date for all types of Encapsulants and the MSDS.		
	WORK CONSTRUCTION SUBMITTALS		
	Daily Logs Documenting Dates, Times, Locations, & Personnel Performing Work		
	Daily Inspection Reports prior to the start of daily work.		
	POST-CONSTRUCTION SUBMITTALS		
	Full Project Report consisting of the daily log book requirements & documentation of events taken place during the Abatement Project, including Waste Shipment Records signed by the Landfill's agent.		
02 82 13.13	GLOVEBAG ASBESTOS ABATEMENT		
	PRE-CONSTRUCTION WORK SUBMITTALS		
	Detailed Work Schedule		
	Staff Organization Chart & Work Qualifications		
	Standard Operating Procedures		
	All Equipment and Materials to be used to perform Contracted Work. (ie. Supply Air, Hepa Filters, Waste Monitoring, Respirators, Fire Safety, etc.)		
	Name, Location, & Contact Information of Approved Landfill		
	Name, Location, & Contact Information of all required Regulatory Agencies.		
	Name, Location, & Contact Information of all Laboratories used for analysis of Test Samples.		
	Submit the following for the verification of qualifications: 1.) Asbestos Abatement Company 2.) List of Projects recently performed. 3.) List of Asbestos Regulatory Citations.		
	Name & Work Qualifications of all Personnel and include the following: 1.) CPIH - Name and Years of Abatement Experience, along with all Certifications & Licenses. 2.) Project Supervisors - Name and Years of Abatement Experience, along with all Certifications & Licenses. 3.) Workers - Name and Years of Abatement Experience, along with all Certifications & Licenses.		
	State License of the Asbestos Abatement Company		
	Manufacturer's Technical Date for all types of Encapsulants and the MSDS.		
	WORK CONSTRUCTION SUBMITTALS		
	Daily Logs Documenting Dates, Times, Locations, & Personnel Performing Work		
	Daily Inspection Reports prior to the start of daily work.		
	POST-CONSTRUCTION SUBMITTALS		
	Full Project Report consisting of the daily log book requirements & documentation of events taken place during the Abatement Project, including Waste Shipment Records signed by the Landfill's agent.		
DIVISION 3 - CONCRETE			
DIVISION 4 - MASONRY			
04 05 13	MASONRY MORTARING		
	Manufacturer's Certificates as follows: 1.) Mortar Cement 2.) Hydrated Lime 3.) Fine Aggregate 4.) Mortar Cement 5.) Hydrated Lime 6.) Fine Aggregate		
	Laboratory Test Results as follows: 1.) Mortar - All Types 2.) Admixtures		
	Manufacturer's Literature & Data as follows: 1.) Cement - All Types 2.) Hydrated Lime 3.) Admixtures 4.) Liquid Acrylic Resin		
	Manufacturer's Product & Installation Warranty		
04 05 16	MASONRY GROUTING		
	Manufacturer's Certificates as follows: 1.) Portland Cement 2.) Masonry Grout 3.) Hydrated Lime 4.) Fine Aggregate 5.) Course Aggregate for Masonry Grout 6.) Color Admixtures		
	Laboratory Test Results as follows: 1.) Masonry Grout - All Types 2.) Admixtures		

	Manufacturer's Literature & Data as follows: 1.) Cement - All Types 2.) Hydrated Lime 3.) Admixtures 4.) Liquid Acrylic Resin		
	Manufacturer's Product & Installation Warranty		
04 20 00	UNIT MASONRY		
	Submit Product Samples as follows: 1.) Face brick, sample panel, minimum 8" x 16", showing full color range and texture of bricks, bond, and proposed mortar joints. 2.) Concrete masonry units 3.) Anchors, Wall-ties, & Joint Reinforcing		
	Submit Shop Drawings to include as follows: 1.) Size & Shape of all masonry units to be used. 2.) Reinforcing Drawings showing applicable dimensions & methods of hanging soffit or lintel masonry & reinforcing masonry for embedment of anchors for hung fixtures. 3.) Ceramic glazed structural facing tile or concrete masonry units for typical window & door openings, and, for special conditions as affected by structural conditions.		
	Manufacturer's Certificates as follows: 1.) Certificates signed by manufacturer, including name and address of contractor, project location, & the quantity, & date or dates of shipment of delivery to which certificate applies. 2.) Certificates indicating the following: - Face brick to be used - All Types - Solid & load-bearing concrete masonry units to be used, including fire-resistant rated units. 3.) Testing laboratories facilities & qualifications of its principals and key personnel to perform tests specified.		
	Laboratory Test Reports		
	Manufacturer's Literature & Data as follows: 1.) Anchors, ties, & reinforcement 2.) Shear Keys 3.) Reinforcing Bars		
	Mock-up Panel, minimum 60" x 48", in accordance with Masonry Standards Joint Committee (MSJC) and Brick Industry Association (BIA), to include the following: 1.) Use masonry units from random cubes of units delivered on site. 2.) Include all back-up wall construction, reinforcing, ties, anchors, thru-wall flashing, air barrier, & weeps to demonstrate complete wall construction.		
	Manufacturer's Product & Installation Warranty		
DIVISION 5 - METALS			
05 12 00	STRUCTURAL STEEL FRAMING		
	Complete Shop & Erection Drawings		
	Manufacturer's Certificates as follows: 1.) Structural Steel 2.) Steel for all Connections 3.) Welding Materials 4.) Shop Coat Primer Paint		
	Laboratory Test Results as follows: 1.) Welders' Qualifying Tests		
	Design Calculations as follows: 1.) All steel fabricated connection calculations.		
	Record Surveys		
	Signed & Stamped Scaffolding/Temporary Shoring Drawings as Required		
	Manufacturer's Product & Installation Warranty		
05 50 00	METAL FABRICATIONS		
	Manufacturer's Literature & Data for each item as specified.		
	Complete Shop & Erection Drawings for each item specified as follows: 1.) Each item specified, showing complete detail, location in the project, material & size of components, method of joining various components and assemblies, finish, & location, size and type of anchors. 2.) Mark items requiring field assembly for erection identification & furnish erection drawings & instructions. 3.) Provide templates and rough-in measurements as required.		
	Manufacturer's Certificates as follows: 1.) Anodized finish as specified. 2.) Live load designs as specified.		
	Design Loads Calculations		
	Setting drawings and installation instructions.		
	Manufacturer's Product & Installation Warranty		
05 51 00	METAL STAIRS		
	Complete Shop Drawings showing design, fabrication details, installation, connections, materials, & size of all members.		

	Manufacturer's Product & Installation Warranty		
DIVISION 6 - WOODS, PLASTICS, & COMPOSITES			
DIVISION 7 - THERMAL & MOISTURE PROTECTION			
07 01 50.19	PREPARATION FOR RE-ROOFING		
	Photographs or Videotape: Document existing conditions of adjacent construction including site improvements.		
	Landfill Records: Indicate receipt and acceptance of hazardous wastes by a licensed landfill facility.		
07 21 13	THERMAL INSULATION		
	Manufacturer's Literature & Data as follows: 1.) Insulation, each type used. 2.) Adhesive, each type used. 3.) Tape.		
	Manufacturer's Certificates as follows: 1.) Certificates stating the type, thickness and "R" value (thermal resistance) of the insulation to be installed.		
	Manufacturer's Product & Installation Warranty		
07 22 00	ROOF AND DECK INSULATION		
	Manufacturer's Literature & Data as follows: 1.) Asphalt and adhesive materials, each type. 2.) Roofing cement, each type. 3.) Roof insulation, each type. 4.) Roof Fasteners & Requirements. 5.) Insulation span data for flutes of metal decks.		
	Complete Shop Drawings to include as follows: 1.) Nailers, cants, and terminations to be used as part of project. 2.) Typical layout of insulation showing slopes, tapers, penetration, and edge conditions.		
	Submit Product Samples as follows: 1.) Roof insulation, each type. 2.) Nails and fasteners, each type.		
	Manufacturer's Certificates as follows: 1.) Certificates indicating type, thermal conductance, and minimum and average thickness of insulation. 2.) Certificates indicating materials and method of application of insulation system meet the requirements of FM Approvals for specified roofing system.		
	Laboratory Test Reports indicating Thermal values of insulation products.		
	Layout of tapered roof system showing units required.		
	Documentation of supervisors' and inspectors' qualifications.		
	Manufacturer's Product & Installation Warranty		
07 53 23	ETHYLENE-PROPYLENE-DIENE-MONOMER ROOFING		
	Applicators approval certification by manufacturer.		
	Complete Shop Drawings to include as follows: 1.) Sheet membrane layout. 2.) Typical Fastening pattern, layout, and spacing. 3.) Typical Termination details.		
	Manufacturer's Literature & Data as follows: 1.) Manufacturers installation instructions revised for project.		
	Submit Product Samples as follows: 1.) Sheet Membrane, minimum 6" x 6". 2.) Sheet Flashing, minimum 6" x 6". 3.) (2) Typical Fasteners, each type. 4.) (2) Welding Seam Samples, minimum 12" x 12", representing the quality of field welded seams.		
	Manufacturer's Product & Installation Warranty		
07 60 00	FLASHING AND SHEET METAL		
	Complete Shop Drawings to include as follows: 1.) Typical Flashings. 2.) Typical Copings. 3.) Gutters & Conductors 4.) Expansion Joints 5.) Fascia-Cant		
	Manufacturer's Literature & Data as follows: 1.) Typical Two-piece counter flashing. 2.) Typical Thru-wall Flashing. 3.) Expansion joint cover, each type 4.) Typical Fascia-cant. 5.) Copings, each type. 6.) Gutters & Downspouts		
	Manufacturer's Certificates as follows: 1.) Certificates Indicating compliance with specified finishing requirements, from applicator and contractor.		
	Manufacturer's Product & Installation Warranty		

07 84 00	FIRESTOPPING		
	Manufacturer's Literature & Data as follows: 1.) Manufacturers literature, data, and installation instructions for types of firestopping & smoke stopping used. 2.) List of FM, UL, or WH classification number of systems installed.		
	Manufacturer's Certificates as follows: 1.) Certified laboratory test reports for ASTM E814 tests for systems not listed by FM, UL, or WH proposed for use.		
	Manufacturer's Product & Installation Warranty		
07 92 00	JOINT SEALANTS		
	Manufacturer's installation instructions for each product used.		
	Submit Product Samples as follows: 1.) Cured samples of exposed sealants for each color where required to match adjacent material.		
	Manufacturer's Literature & Data as follows: 1.) Typical Caulking compound 2.) Typical Primers 3.) Sealing compound, each type, including compatibility when different sealants are in contact with each other.		
	Mock-up Panel, verifying selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.		
	Manufacturer's Product & Installation Warranty		
DIVISION 8 - OPENINGS			
08 11 13	HOLLOW METAL DOORS AND FRAMES		
	Manufacturer's Literature & Data as follows: 1.) Fire rated doors and frames, showing conformance with NFPA 80 and Underwriters Laboratory, Inc., or Intertek Testing Services or Factory Mutual fire rating requirements and temperature rise rating for stairwell doors. Submit proof of temperature rating. 2.) Sound rated doors, including test report from Testing Laboratory.		
	Manufacturer's Product & Installation Warranty		
08 71 00	DOOR HARDWARE		
	Manufacturer's Literature & Data as follows: 1.) Product Data & Information for all Door Hardware to be provided.		
	Complete Shop Drawings to include as follows: 1.) Hardware Schedule: Prepare and submit hardware schedule per specification section 1.6B. 2.) Maintenance Manuals & Instructions for all Door Hardware.		
	Submit Product Samples as follows: 1.) All hardware items (proposed for the project) that have not been previously approved by Builders Hardware Manufacturers Association shall be submitted for approval.		
	Manufacturer's Certificates as follows: 1.) Certificate of Compliance and Test Reports that certificates that hardware conforms to the requirements specified herein. Certificates shall be accompanied by copies of reports as referenced. The testing shall have been conducted either in the manufacturer's plant and certified by an independent testing laboratory or conducted in an independent laboratory, within four years of submittal of reports for approval.		
	Manufacturer's Product & Installation Warranty		
DIVISION 9 - FINISHES			
09 22 16	NON-STRUCTURAL METAL FRAMING		
	Manufacturer's Literature & Data as follows: 1.) Studs, runners and accessories. 2.) Hanger inserts. 3.) Channels (Rolled steel). 4.) Furring channels. 5.) Screws, clips and other fasteners.		
	Complete Shop Drawings to include as follows: 1.) Showing typical ceiling suspension system. 2.) Showing typical metal stud and furring construction system including details around openings and corner details. 3.) Showing typical fire rated assembly and column fireproofing showing details of construction same as that used in fire rating test.		
	Laboratory Test Reports as follows: 1.) Fire rating test designation, each fire rating required for each assembly.		
09 29 00	GYPSUM BOARD		
	Manufacturer's Literature & Data as follows: 1.) Cornerbead and edge trim. 2.) Finishing materials. 3.) Laminating adhesive. 4.) Gypsum board, each type.		

	Complete Shop Drawings to include as follows: 1.) Showing Typical gypsum board installation, showing corner details, edge trim details and the like. 2.) Showing typical sound rated assembly, showing treatment at perimeter of partitions and penetrations at gypsum board. 3.) Showing typical fire rated assembly and column fireproofing, indicating details of construction same as that used in fire rating test.		
	Submit Product Samples as follows: 1.) Typical Cornerbead. 2.) Typical Edge Trim. 3.) Typical Control Joint.		
	Laboratory Test Reports as follows: 1.) Fire rating test designation, each fire rating required for each assembly. 2.) Sound rating test.		
09 91 00	PAINTING		
	Manufacturer's Literature & Data as follows: 1.) Before work is started, or sample panels are prepared, submit manufacturer's literature, the current Master Painters Institute (MPI) "Approved Product List" indicating brand label, product name and product code as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use subsequent MPI "Approved Product List", however, only one list may be used for the entire contract and each coating system is to be from a single manufacturer. All coats on a particular substrate must be from a single manufacturer. No variation from the MPI "Approved Product List" where applicable is acceptable.		
	Submit Product Samples as follows: 1.) Sample panels showing each type of finish and color specified. 2.) Sample panels to include the following: - Composition board, minimum 4" x 10" x 1/8" thick. - Panel to show transparent finishes: Wood of same species and grain pattern as wood approved for use, 4" x 10" x 1/8" thick, and where both flat and edge grain will be exposed, minimum 10" long by sufficient size, to show complete finish. 3.) Attach labels to panel stating the following: - Federal Specification Number or manufacturers name and product number of paints used. - Specification code number specified in Section 09 06 05, MATERIALS SCHEDULE. - Product type and color. - Formula for paint color. - Name of project. 4.) Sample of identity markers if used.		
	Manufacturer's Certificates as follows: 1.) Manufacturer's paint substituted for Federal Specification paints meets or exceeds performance of paint specified. 2.) High temperature aluminum paint. 3.) Epoxy coating. 4.) Intumescent clear coating or fire retardant paint. 5.) Plastic floor coating.		
	Mock-up Panel, minimum 100 SF as follows: 1.) Apply paint as specified to an area, selected by Resident Engineer. 2.) Finish and texture approved by Resident Engineer will be used as a standard of quality for remainder of work.		

Specification Section	Submittal Name/Type	Submitted (Y/N)	Approved (Y/N)
DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)			
23 05 11	COMMON WORK RESULTS FOR HVAC		
	Pre-construction Submittals as follows: 1.) Contractor shall make all necessary field measurements and investigations to assure that the equipment and assemblies will meet contract requirements. 2.) If equipment is submitted which differs in arrangement from that shown, provide drawings that show the rearrangement of all associated systems. Approval will be given only if all features of the equipment and associated systems, including accessibility, are equivalent to that required by the contract. 3.) Prior to submitting shop drawings for approval, contractor shall certify in writing that manufacturers of all major items of equipment have each reviewed drawings and specifications, and have jointly coordinated and properly integrated their equipment and controls to provide a complete and efficient installation.		
	Complete Shop Drawings to include as follows: 1.) Submittals and shop drawings for interdependent items, containing applicable descriptive information, shall be furnished together and complete in a group. 2.) Complete layout drawings to include the following: - Submit complete consolidated and coordinated layout drawings for all new systems, and for existing systems that are in the same areas. - The drawings shall include plan views, elevations and sections of all systems and shall be on a scale of not less than 1:32 (3/8-inch equal to one foot). Clearly identify and dimension the proposed locations of the principal items of equipment. The drawings shall clearly show locations and adequate clearance for all equipment, piping, valves, control panels and other items. Show the access means for all items requiring access for operations and maintenance. Provide detailed layout drawings of all piping and duct systems. 3.) Detail drawings to include the following: - Mechanical equipment rooms. - Interstitial space. - Hangers, inserts, supports, and bracing. - Pipe sleeves. - Duct or equipment penetrations of floors, walls, ceilings, or roofs.		
	Manufacturer's Literature & Data as follows: 1.) Belt drive with the driven equipment. 2.) Electric motor data and variable speed drive data with the driven equipment. 3.) Equipment and materials identification. 4.) Fire-stopping materials. 5.) Hangers, inserts, supports and bracing. Provide load calculations for variable spring and constant support hangers. 6.) Wall, floor, and ceiling plates.		
	Operation & Maintenance Data as follows: 1.) Maintenance and operating manuals in accordance with Section 01 00 00, GENERAL REQUIREMENTS. 2.) Provide a listing of recommended replacement parts for keeping in stock supply, including sources of supply, for equipment. Include in the listing belts for equipment: Belt manufacturer, model number, size and style, and distinguished whether of multiple belt sets. 3.) Provide copies of approved HVAC equipment submittals to the Testing, Adjusting and Balancing Subcontractor. 4.) Training manuals, schematics, maintenance schedules are required to be provided to VA personnel for all new equipment installed.		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
23 05 12	GENERAL MOTOR REQ'TS FOR HVAC & STEAM GENERATION EQUIPMENT		
	Complete Shop Drawings to include as follows: 1.) Provide documentation to demonstrate compliance with drawings and specifications. 2.) Include electrical ratings, efficiency, bearing data, power factor, frame size, dimensions, mounting details, materials, horsepower, voltage, phase, speed (RPM), enclosure, starting characteristics, torque characteristics, code letter, full load and locked rotor current, service factor, and lubrication method.		
	Operation & Maintenance Data as follows: 1.) Submit simultaneously with the shop drawings, companion copies of complete installation, maintenance and operating manuals, including technical data sheets and application data.		
	Manufacturer's Certificates as follows: 1.) Four copies of Certification stating that the motors have been applied, installed, adjusted, lubricated, and tested according to manufacturer published recommendations.		
	Completed System Readiness Checklist		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
23 05 41	NOISE AND VIBRATION CONTROL FOR HVAC PIPING AND EQUIPMENT		

	<p>Manufacturer's Literature & Data as follows:</p> <ol style="list-style-type: none"> 1.) Vibration isolators. 2.) Bases. 3.) Seismic restraint provisions and bolting. 4.) Acoustical enclosures. 5.) Isolator manufacturer shall furnish with submittal load calculations for selection of isolators, including supplemental bases, based on lowest operating speed of equipment supported. 6.) Seismic Requirements: Submittals are required for all equipment anchors, supports and seismic restraints. Submittals shall include weights, dimensions, standard connections, and manufacturer's certification that all specified equipment will withstand seismic Lateral Force requirements as shown on drawings. 		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC		
	<p>Name & Work Qualifications of all Personnel and include the following:</p> <ol style="list-style-type: none"> 1.) Submit names and qualifications of TAB agency and TAB specialists within 60 days after the notice to proceed. Submit information on three recently completed projects and a list of proposed test equipment 		
	<p>Certification Data as follows:</p> <ol style="list-style-type: none"> 1.) Design Review Report within 90 days for conventional design projects after the system layout on air and water side is completed by the Contractor. 2.) Systems inspection report on equipment and installation for conformance with design. 3.) Duct Air Leakage Test Report. 4.) Systems Readiness Report. 5.) Intermediate and Final TAB reports covering flow balance and adjustments, performance tests, vibration tests and sound tests. 6.) Include in final reports uncorrected installation deficiencies noted during TAB and applicable explanatory comments on test results that differ from design requirements. 		
	Final HVAC Test & Balance Report		
	Completed System Readiness Checklist		
	Final Commissioning Documentation		
23 07 11	HVAC AND BOILER PLANT INSULATION		
	<p>Manufacturer's Literature & Data as follows:</p> <ol style="list-style-type: none"> 1.) All information, clearly presented, shall be included to determine compliance with drawings and specifications and ASTM, federal and military specifications. 2.) Insulation materials: Specify each type used and state surface burning characteristics. 3.) Insulation facings and jackets: Each type used. 4.) Insulation accessory materials: Each type used. 5.) Manufacturer's installation and fitting fabrication instructions for flexible unicellular insulation. 6.) Make reference to applicable specification paragraph numbers for coordination. 		
	<p>Submit Product Samples as follows:</p> <ol style="list-style-type: none"> 1.) Each type of insulation, minimum 4" x 6" long, full diameter for round types. 2.) Each type of facing and jacket, minimum 4" x 4". 3.) Each accessory material, minimum 4 ounces. 		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
23 08 00	COMMISSIONING OF HVAC SYSTEMS		
	<p>Review & Approval of required shop drawings submittals as called for in the specifications. Refer to Section 01 33 23 SHOP DRAWINGS, PRODUCT DATA, and SAMPLES for further details.</p>		
	<p>The commissioning process requires Submittal review simultaneously with engineering review. Specific submittal requirements related to the commissioning process are specified in Section 01 91 00 GENERAL COMMISSIONING REQUIREMENTS.</p>		
23 09 23	DIRECT-DIGITAL CONTROL SYSTEM FOR HVAC		

	<p>Manufacturer's Literature & Data as follows:</p> <ol style="list-style-type: none"> 1.) A wiring diagram for each type of input device and output device including DDC controllers, modems, repeaters, etc. Diagram shall show how the device is wired and powered, showing typical connections at the digital controllers and each power supply, as well as the device itself. Show for all field connected devices, including but not limited to, control relays, motor starters, electric or electronic actuators, and temperature pressure, flow and humidity sensors and transmitters. 2.) A diagram of each terminal strip, including digital controller terminal strips, terminal strip location, termination numbers and the associated point names. 3.) Control dampers and control valves schedule, including the size and pressure drop. 4.) Control air-supply components, and computations for sizing compressors, receivers and main air-piping, if pneumatic controls are furnished. 5.) Catalog cut sheets of all equipment used. 6.) Sequence of operations for each HVAC system and the associated control diagrams. 7.) Color prints of proposed graphics with a list of points for display. 8.) Furnish a BACnet Protocol Implementation Conformance Statement (PICS) for each BACnet-compliant device. 9.) Schematic wiring diagrams for all control, communication and power wiring. 10.) An instrumentation list for each controlled system. 11.) Riser diagrams of wiring between central control unit and all control panels. 12.) Scaled plan drawings showing routing of LAN and locations of control panels, controllers, routers, gateways, ECC, and larger controlled devices. 13.) Construction details for all installed conduit, cabling, raceway, cabinets, and similar. 		
	<p>Manufacturer's Certificates as follows:</p> <ol style="list-style-type: none"> 1.) Product Certificates: Compliance with Article, QUALITY ASSURANCE. 		
	<p>Licenses: Provide licenses for all software residing on and used by the Controls Systems and transfer these licenses to the Owner prior to completion.</p>		
	<p>As-built Documentation to include as follows:</p> <ol style="list-style-type: none"> 1.) Furnish three (3) copies of as-built drawings for each control system. The documents shall be submitted for approval prior to final completion. 2.) Furnish one (1) stick set of applicable control system prints for each mechanical system for wall mounting. The documents shall be submitted for approval prior to final completion. 3.) Furnish one (1) CD-ROM in CAD DWG and/or .DXF format for the drawings noted in specifications. 		
	<p>Operation & Maintenance Data as follows:</p> <ol style="list-style-type: none"> 1.) General description and specifications for all components, including logging on/off, alarm handling, producing trend reports, overriding computer control, and changing set points and other variables. 2.) Detailed illustrations of all the control systems specified for ease of maintenance and repair/replacement procedures, and complete calibration procedures. 3.) One copy of the final version of all software provided including operating systems, programming language, operator workstation software, and graphics software. 4.) Complete troubleshooting procedures and guidelines for all systems. 5.) Complete operating instructions for all systems. 6.) Recommended preventive maintenance procedures for all system components including a schedule of tasks for inspection, cleaning and calibration. Provide a list of recommended spare parts needed to minimize downtime. 7.) Training Manuals: Submit the course outline and training material to the Owner for approval three (3) weeks prior to the training to VA facility personnel. These persons will be responsible for maintaining and the operation of the control systems, including programming. The Owner reserves the right to modify any or all of the course outline and training material. 8.) Licenses, guaranty, and other pertaining documents for all equipment and systems. 		
	Final Performance Report		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
23 21 13	HYDRONIC PIPING		
	<p>Manufacturer's Literature & Data as follows:</p> <ol style="list-style-type: none"> 1.) Pipe and equipment supports. Submit calculations for variable spring and constant support hangers. 2.) Pipe and tubing, with specification, class or type, and schedule. 3.) Pipe fittings, including miscellaneous adapters and special fittings. 4.) Flanges, gaskets and bolting. 5.) Grooved joint couplings and fittings. 6.) Valves of all types. 7.) Strainers. 8.) Flexible connectors for water service. 9.) Pipe alignment guides. 10.) All specified hydronic system components. 11.) Water flow measuring devices. 12.) Gages. 13.) Thermometers and test wells. 14.) Seismic bracing details for piping. 		

	Manufacturer's Certificates as follows: 1.) Heat Exchangers 2.) Air Separators 3.) Expansion Tanks		
	Name & Work Qualifications of all Personnel and include the following: 1.) Submit the welder's qualifications in the form of a current (less than one year old) and formal certificate.		
	Coordination Drawings to include as follows: 1.) Complete consolidated and coordinated layout drawings shall be submitted for all new systems, and for existing systems that are in the same areas.		
	As-built Documentation to include as follows: 1.) As Built Piping Diagrams: Provide drawing as follows for chilled water, condenser water, and heating hot water system and other piping systems and equipment. - One wall mounted stick file with complete set of prints. Mount stick file in the chiller plant or control room along with control diagram stick file. - One complete set of reproducible drawings. - One complete set of drawings in electronic AutoCAD and pdf format.		
	Final Performance Report		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
23 31 00	HVAC DUCTS AND CASINGS		
	Manufacturer's Literature & Data as follows: 1.) Rectangular ducts 2.) Round and flat oval duct construction details 3.) Volume dampers, back draft dampers. 4.) Upper hanger attachments. 5.) Fire dampers, with installation instructions. 6.) Flexible ducts and clamps, with manufacturer's installation instructions. 7.) Flexible connections. 8.) Instrument test fittings. 9.) Details and design analysis of alternate or optional duct systems.		
	Coordination Drawings to include as follows: 1.) Complete consolidated and coordinated layout drawings shall be submitted for all new systems, and for existing systems that are in the same areas.		
	Final Performance Report		
	Final Commissioning Documentation		
23 82 16	AIR COILS		
	Manufacturer's Literature & Data as follows: 1.) Heating and Cooling Coils: Submit type, size, arrangements and performance details. Present application ratings in the form of tables, charts or curves.		
	Manufacturer's Certificates as follows: 1.) Evidence of listing in current ARI Directory of Certified Applied Air Conditioning Products.		
	Operation & Maintenance Data as follows: 1.) Maintenance and operating instructions in accordance with Section 01 00 00, GENERAL REQUIREMENTS.		
	Completed System Readiness Checklist		
	Final Performance Report		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
DIVISION 26 - ELECTRICAL			
26 05 11	REQUIREMENTS FOR ELECTRICAL INSTALLATIONS		
	Manufacturer's Literature & Data as follows: 1.) Information that confirms compliance with contract requirements. Include the manufacturer's name, model or catalog numbers, catalog information, technical data sheets, shop drawings, pictures, nameplate data and test reports as required. 2.) Elementary and interconnection wiring diagrams for communication and signal systems, control systems and equipment assemblies. All terminal points and wiring shall be identified on wiring diagrams. 3.) Parts list which shall include those replacement parts recommended by the equipment manufacturer.		
	Operation & Maintenance Data as follows: 1.) Maintenance and operating instructions in accordance with Section 01 00 00, GENERAL REQUIREMENTS.		
	Final Performance Report		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
26 05 26	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS		

	Complete Shop Drawings to include as follows: 1.) Clearly present enough information to determine compliance with drawings and specifications. 2.) Include the location of system grounding electrode connections and the routing of aboveground and underground grounding electrode conductors.		
	Manufacturer's Certificates as follows: 1.) Provide certified test reports of ground resistance. 2.) Certification that the materials and installation are in accordance with the drawings and specifications. 3.) Certification by the contractor that the complete installation has been properly installed and tested.		
26 05 33	RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS		
	Manufacturer's Literature & Data as follows: 1.) Manufacturer's Literature and Data Showing each cable type and rating. The specific item proposed and its area of application shall be identified on the catalog cuts.		
	Complete Shop Drawings to include as follows: 1.) Size and location of main feeders. 2.) Size and location of panels and pull-boxes. 3.) Layout of required conduit penetrations through structural elements.		
	Manufacturer's Certificates as follows: 1.) Certification that the materials and installation are in accordance with the drawings and specifications. 2.) Certification by the contractor that the complete installation has been properly installed and tested.		
26 24 16	PANELBOARDS		
	Complete Shop Drawings to include as follows: 1.) Clearly present enough information to determine compliance with drawings and specifications. 2.) Include electrical ratings, dimensions, mounting details, materials, wiring diagrams, accessories, and weights of equipment. Complete nameplate data, including manufacturer's name and catalog number.		
	Operation & Maintenance Data as follows: 1.) Maintenance and operating instructions in accordance with Section 01 00 00, GENERAL REQUIREMENTS. 2.) When submitting the shop drawings, submit companion copies of complete maintenance and operating manuals, including technical data sheets and wiring diagrams. 3.) If changes have been made to the maintenance and operating manuals that were originally submitted, then submit four copies of updated maintenance and operating manuals to the COR two weeks prior to final inspection.		
	Manufacturer's Certificates as follows: 1.) Certification by the manufacturer that the materials conform to the requirements of the drawings and specifications. 2.) Certification by the contractor that the materials have been properly installed, connected, and tested.		
	Final Performance Report		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
26 27 26	WIRING DEVICES		
	Complete Shop Drawings to include as follows: 1.) Clearly present enough information to determine compliance with drawings and specifications. 2.) Include electrical ratings, dimensions, mounting details, construction materials, grade and termination information.		
	Operation & Maintenance Data as follows: 1.) Maintenance and operating instructions in accordance with Section 01 00 00, GENERAL REQUIREMENTS. 2.) When submitting the shop drawings, submit companion copies of complete maintenance and operating manuals, including Technical data sheets and information for ordering replacement units.		
	Manufacturer's Certificates as follows: 1.) Certification by the Contractor that the devices comply with the drawings and specifications, and have been properly installed, aligned, and tested.		
	Final Performance Report		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
26 29 11	MOTOR STARTERS		
	Complete Shop Drawings to include as follows: 1.) Clearly present enough information to determine compliance with drawings and specifications. 2.) Include electrical ratings, dimensions, weights, mounting details, materials, running over current protection, size of enclosure, over current protection, wiring diagrams, starting characteristics, interlocking and accessories.		

	<p>Operation & Maintenance Data as follows:</p> <ol style="list-style-type: none"> 1.) Maintenance and operating instructions in accordance with Section 01 00 00, GENERAL REQUIREMENTS. 2.) When submitting the shop drawings, submit companion copies of complete maintenance and operating manuals, including technical data sheets, wiring diagrams, and information for ordering replacement parts. Include the following: <ul style="list-style-type: none"> - Identify terminals on wiring diagrams to facilitate installation, maintenance, and operation. - Indicate on wiring diagrams the internal wiring for each piece of equipment & interconnections between the pieces of equipment. - Elementary schematic diagrams shall be provided for clarity of operation. 3.) Submit Final Maintenance & Operation Manuals & include the following: <ul style="list-style-type: none"> - Update the manual to include any information necessitated by shop drawing approval. - Include information for testing, repair, trouble-shooting, assembly, disassembly, and recommended maintenance intervals. - Provide a replacement parts list with current prices. Include a list of recommended spare parts, tools, and instruments for testing and maintenance purposes. - Furnish manuals in loose leaf binder or manufacturer's standard binder. 		
	<p>Manufacturer's Certificates as follows:</p> <ol style="list-style-type: none"> 1.) Certification by the Contractor that the devices comply with the drawings and specifications, and have been properly installed, aligned, and tested. 2.) Certification by the manufacturer that medium voltage motor controller(s) conforms to the requirements of the drawings and specifications. This certification must be furnished to the COR prior to shipping the controller(s) to the job site. 		
	Final Performance Report		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
26 29 21	DISCONNECT SWITCHES		
	<p>Complete Shop Drawings to include as follows:</p> <ol style="list-style-type: none"> 1.) Clearly present enough information to determine compliance with drawings and specifications. 2.) Include electrical ratings, dimensions, mounting details, materials, enclosure types, and fuse types and classes. 3.) Show the specific switch and fuse proposed for each specific piece of equipment or circuit. 		
	<p>Operation & Maintenance Data as follows:</p> <ol style="list-style-type: none"> 1.) Maintenance and operating instructions in accordance with Section 01 00 00, GENERAL REQUIREMENTS. 2.) When submitting the shop drawings, submit companion copies of complete maintenance and operating manuals, including technical data sheets, wiring diagrams, and information for ordering replacement parts. Include the following: <ul style="list-style-type: none"> - Identify terminals on wiring diagrams to facilitate installation, maintenance, and operation. - Wiring diagrams shall indicate internal wiring and any interlocking. 3.) Submit Final Maintenance & Operation Manuals & include the following: <ul style="list-style-type: none"> - Update the manual to include any information necessitated by shop drawing approval. - Include information for testing, repair, trouble-shooting, assembly, disassembly, and recommended maintenance intervals. - Provide a replacement parts list with current prices. Include a list of recommended spare parts, tools, and instruments for testing and maintenance purposes. - Furnish manuals in loose leaf binder or manufacturer's standard binder. 		
	<p>Manufacturer's Certificates as follows:</p> <ol style="list-style-type: none"> 1.) Certification by the manufacturer that the materials conform to the requirements of the drawings and specifications. 2.) Certification by the contractor that the materials have been properly installed, connected, and tested. 		
	Final Performance Report		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		
DIVISION 28 - ELECTRONIC SAFETY & SECURITY			
28 31 00	FIRE DETECTION AND ALARM		
	<p>Complete Shop Drawings to include as follows:</p> <ol style="list-style-type: none"> 1.) Clearly present enough information to determine compliance with drawings and specifications. 2.) Shop Drawings to include the following: <ul style="list-style-type: none"> - Drawing Index/Cover Sheet - Floor Plans - Riser Diagrams for each applicable system - Detailed wiring diagram for each applicable system 		
	<p>As-built Documentation to include as follows:</p> <ol style="list-style-type: none"> 1.) As built drawings (floor plans) shall show all new and existing conduit used for the fire alarm system.. 		
	<p>Operation & Maintenance Data as follows:</p> <ol style="list-style-type: none"> 1.) Maintenance and operating instructions in accordance with Section 01 00 00, 		

	<p>Manufacturer's Certificates as follows:</p> <ol style="list-style-type: none"> 1.) Certification by the manufacturer that the materials conform to the requirements of the drawings and specifications. 2.) Certification, by the Contractor, that the complete installation has been properly installed and tested. 3.) Technician's NICET level III fire alarm certification as well as certification from the control unit manufacturer that the proposed performer of contract maintenance is an authorized representative of the major equipment manufacturer. 4.) Certification from either the control unit manufacturer or the manufacturer of each component (e.g., smoke detector) that the components being furnished are compatible with the control unit. 5.) Certification from the major equipment manufacturer that the wiring and connection diagrams meet this specification, UL and NFPA 72 requirements. 		
	Final Performance Report		
	Manufacturer's Product & Installation Warranty		
	Final Commissioning Documentation		